

NC
715
A33
1993
gr.07-12
CURRGDHT



EX LIBRIS
UNIVERSITATIS
ALBERTÆNSIS

DESIGN STUDIES

Course of Studies

DRAFT

1993-94 Field Review

- Introductory Level
- Intermediate Level
- Advanced Level



Career &
Technology
STUDIES

JULY 1993

Alberta

EDUCATION
CURRICULUM BRANCH

NOTE: Questions or comments about this course of studies are welcome and should be directed to:

Glen O'Neil
Program Consultant, Design Studies
Curriculum Branch
Alberta Education
Devonian Building West
11160 Jasper Avenue
Edmonton, Alberta
T5K 0L2

Telephone: (403) 427-2984
Fax: (403) 422-3745

or to:

Sharon Prather
Program Manager, Career and Technology Studies
Curriculum Branch
Alberta Education
Devonian Building West
11160 Jasper Avenue
Edmonton, Alberta
T5K 0L2

Telephone: (403) 427-2984
Fax: (403) 422-3745

TABLE OF CONTENTS

A.	STRAND RATIONALE	1
B.	STRAND ORGANIZATION	3
	Curriculum Structure	3
	Development Model	3
	Themes	4
	Program Planning	4
	Sample	4
	Linkages	4
	Scope and Sequence	5
	Module Descriptions	6
C.	CURRICULUM AND ASSESSMENT STANDARDS	9
	Curriculum Standards	9
	Strand Learner Expectations	9
	Module Learner Expectations	9
	Specific Learner Expectations	9
	Assessment Standards	9
	Module DES101: Sketching and Drawing Fundamentals	11
	Module DES102: The Design Process	13
	Module DES103: Design Techniques Fundamentals (2D/3D)	15
	Module DES104: Design Problems Fundamentals (2D/3D)	17
	Module DES105: Computers in Design Fundamentals	19
	Module DES106: Design Drafting Fundamentals	21
	Module DES201: 2-D Design Applications	23
	Module DES202: 3-D Design Applications	25
	Module DES203: Computers in Design Applications	27
	Module DES204: Design Drafting Applications	29
	Module DES205: Technical Drawing Applications	31
	Module DES206: The Evolution of Design	33
	Module DES301: 2-D Design Studio (Form, Composition and Aesthetics)	35
	Module DES302: 2-D Design Studio (Communication and Human Factors)	37
	Module DES303: 2-D Design Studio (Materials and Production Processes)	39
	Module DES304: 3-D Design Studio (Form, Composition and Aesthetics)	41
	Module DES305: 3-D Design Studio (Communication and Human Factors)	43
	Module DES306: 3-D Design Studio (Materials and Production Processes)	45
	Module DES307: Living Environments Studio (Form, Composition and Aesthetics)	47
	Module DES308: Living Environments Studio (Communication and Human Factors)	49
	Module DES309: Living Environments Studio (Materials and Production Processes)	51

Module DES310:	Computer Aided Design and Modelling	53
Module DES311:	Design Drafting Studio (Space, Form and Aesthetics)	55
Module DES312:	Design Drafting Studio (Communication and Human Factors)	57
Module DES313:	Design Drafting Studio (Materials and Production Processes)	59
Module DES314:	Technical Drawing Studio (Space, Form and Aesthetics)	61
Module DES315:	Technical Drawing Studio (Communication and Human Factors)	63
Module DES316:	Technical Drawing Studio (Materials and Production Processes)	65
Module DES317:	Visualizing the Future	67
Module DES318:	The Business and Profession of Design	69
Module DES319:	Portfolio Presentation	71
Modules DES 107, DES108, DES207, DES208, DES320, DES321:	Design Drafting Activity Modules	73



DESIGN STUDIES

A. STRAND RATIONALE

Design is an integral part of our society. It permeates every facet of civilization, sometimes in complex ways, many times quite simply. Everyone designs every day. As challenges are met and problems addressed, we use previously “designed” approaches or newly “designed” ways to meet these challenges. Design brings a sense of order to our world. Young children in play design physical structures, visual images, systems of organization and social patterns. Professional designers also create these and many other things. Their work is seen in signs, displays, products, packages, road systems, computer games, furniture, automobiles, clothing, banquets, houses and highrises, to name a few examples.

Most students will not become “professional designers”, but all will engage in design in some way. Design Studies will help students become aware of design in their environment, engage them in “designing”, and show them how design processes may be used in many contexts. Being aware of and appreciating the importance of design will help students become effective members of society.

Design can be described as a “creative problem-solving process, which begins with identifying a specific human need and results, ideally, in a product or situation that improves or enhances some aspect of our lives.”★ Design can be both a noun and a verb. As a noun, design can describe

a condition, as in the statement “... your design shows creativity.” As a verb, design suggests a process or problem-solving activity, as in the statement “... I need to design a container to carry water.” Design Studies students work primarily in the context of design as a verb.

All students are expected to develop problem-solving skills through their school experience. The act of designing involves solving problems, through processes, within specified constraints. To learn how to design is to be actively involved in the designing process by addressing specific problems and generating solutions. Design Studies deals specifically with solving problems in a variety of contexts limited only by facility or imagination. Design Studies students may be expected to solve visual problems, structural problems and organizational problems using the context of their world, their other classes and their community experiences. This ability to solve problems will be applied by Design Studies students in their daily lives, in their workplace activities and in post-secondary studies. The processes, tools and technologies used during Design Studies will be relevant because the learnings will occur in context as they are required and can be applied. The practical applications will be reinforced by theory within the applied context.

★ Definition taken from *What Is Design?* (Alberta Culture and Multiculturalism).

There are many reasons for students to engage in Design Studies. For example, students may wish to:

- develop and apply creative abilities and aesthetic awareness
- develop investigative and research skills
- develop problem-solving abilities
- develop the ability to select an appropriate medium, model a solution and effectively communicate the solution to others
- recognize the importance of design in the human environment and its impact upon the natural environment
- appreciate the relationship between aesthetics, function, materials and processes
- become aware of the many factors that have to be taken into account in order to achieve appropriate and effective design solutions
- use appropriate technology to arrive at design solutions
- create innovative approaches, products and systems
- recognize significant historical events in design and how they have influenced subsequent design developments
- be better able to pursue a design career.

Design may be studied in its own right or it may be incorporated into other curricula. Key features of Design Studies and other design-based programs will be:

- encouraging and facilitating students to be creative, innovative and curious
- teaching students to identify and solve many different kinds of design problems
- incorporating student-directed learning
- applying theory within a context
- using technology appropriately and effectively
- teaching safe and effective work practices
- encouraging cross-curricular links
- teaching teamwork strategies and skills
- reaching beyond the school to the community, to create links, projects and contacts with designers, local groups, professionals and businesses
- appreciating appropriate attitudes such as pursuing and valuing quality, ethics, professionalism, attention to detail, perseverance, and understanding the discipline of design.

B. STRAND ORGANIZATION

CURRICULUM STRUCTURE

The Design Studies modules are organized at three levels, introductory, intermediate and advanced, denoting the degree of complexity, and level of student ability expected for success.

Students at the introductory level will work with teacher guidance. At the intermediate level, students are expected to work with limited direct instruction from their teacher. At the advanced level, students are expected to take personal responsibility for their learning, to work cooperatively in design teams when appropriate, and to require limited direct instruction from their teacher.

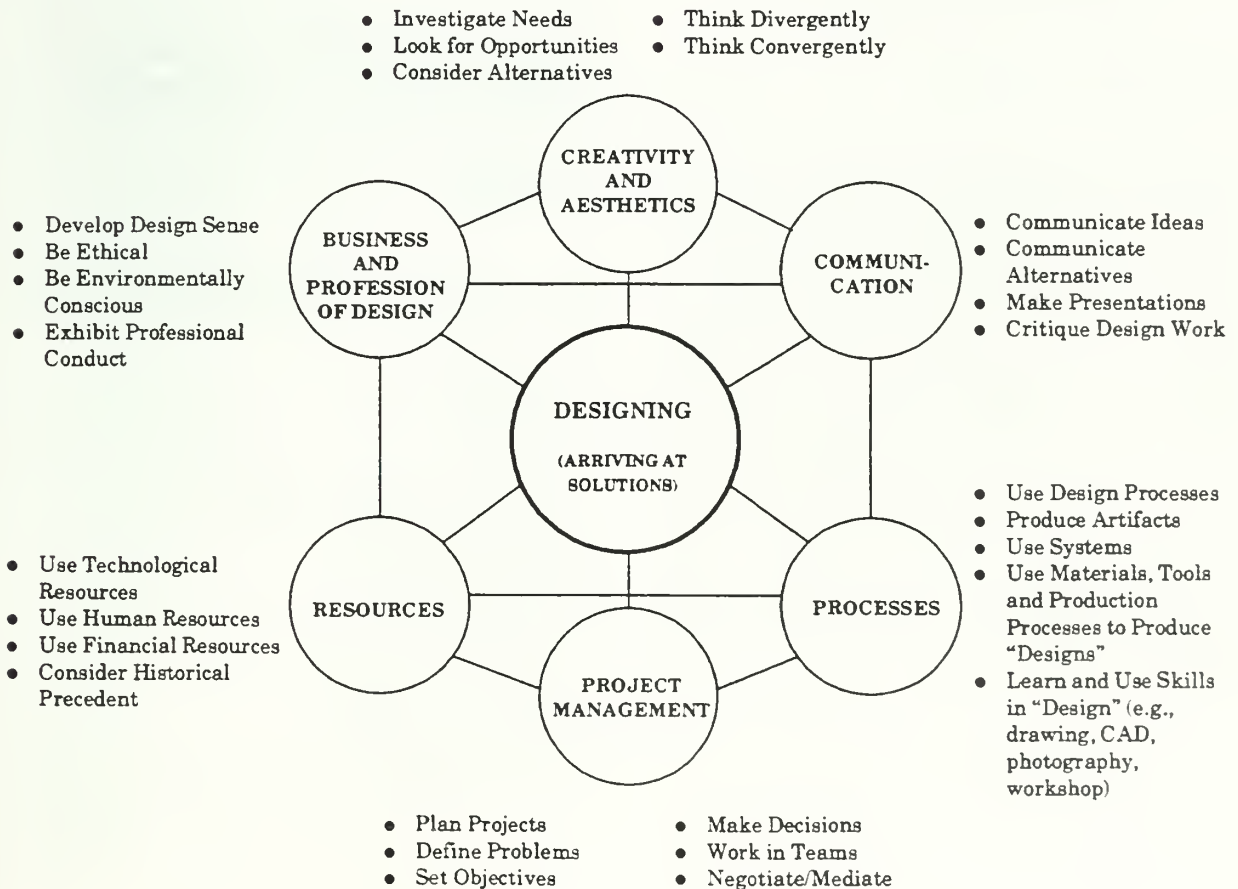
The scope and sequence chart illustrates the modules available within the Design Studies strand.

DEVELOPMENT MODEL

Design and Design Studies centres around the activity of problem solving within constraints. Design is complex, requiring the designer to simultaneously bring together numerous bits of knowledge, various processes and a variety of skills, and to use them together to address the task at hand. Design Studies focuses on six major areas:

- creativity and aesthetics
- processes
- resources
- communication
- project management
- business and profession of design.

The following illustration shows how these components interrelate.



THEMES

Modules in Design Studies are divided into three theme areas:

- general design
- design drafting
- business/issues/history.

Common concepts addressed throughout the modules are:

- applied problem solving
- elements and principles of design
- presentation, design journal and portfolio.

These are complemented by concepts specific to individual modules but applicable to others such as:

- basic computer applications
- human factors and design.

PROGRAM PLANNING

The Design Studies modules may be offered in a variety of contexts, depending on local need and on the human and physical resources available in the school and community. The curriculum has been designed so that individual modules or clusters of modules can be offered. Not all schools will be able to offer a full Design Studies program. Courses may be designed by using only Design Studies modules or by combining Design Studies modules with modules from other CTS strands. Some schools may wish to concentrate on the two-dimensional design modules while others will prefer to offer the modules in three-dimensional design or design drafting. Each module has a value of 1 credit, so clustering may occur in traditional 3- or 5-credit units or in other configurations.

Sample

An example of a 3-credit course is:

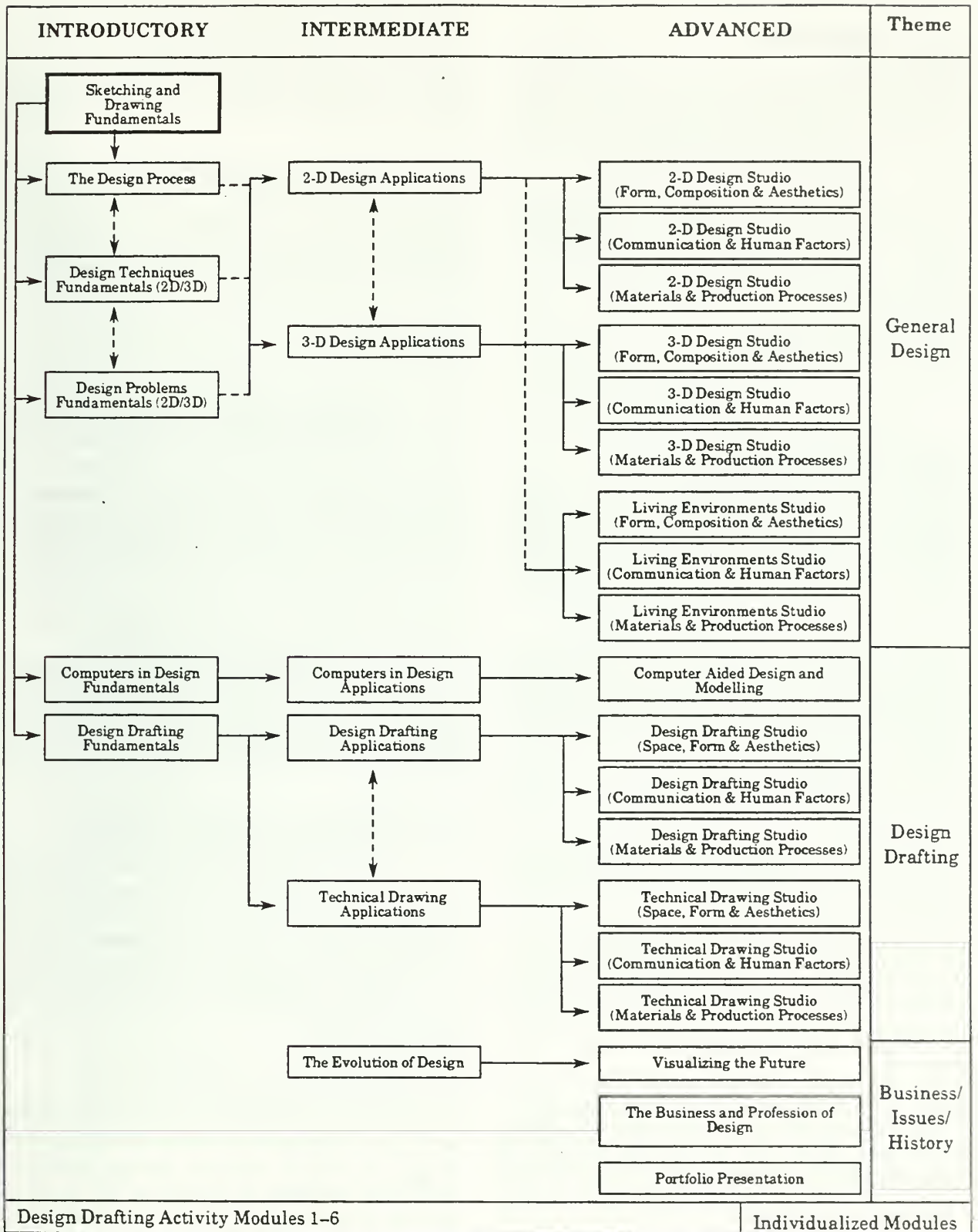
MODULES
<ul style="list-style-type: none">● Sketching and Drawing Fundamentals (DES101)● The Design Process (DES102)● Design Drafting Fundamentals (DES106)
RATIONALE/LEARNINGS
<p>Students have the opportunity to learn a process of “design” (through experiences in two- and three-dimensional design), basic visualization skills (through sketching and drawing) and several basic drafting styles and techniques (isometric, oblique and mechanical perspective).</p> <p>This course will complement the fine arts and science programs and other CTS strands. Students will use various basic tools and materials in several contexts.</p>

LINKAGES

Some of the career areas directly related to Design Studies and supported by the strand modules include:

- Architect
- Draftsman
- Engineer
- Exhibition/Display Designer
- Fashion Designer
- Furniture Designer
- Graphic Designer
- Illustrator
- Industrial Designer
- Interior Designer
- Landscape Designer
- Product Designer
- Set Designer.

DESIGN STUDIES SCOPE AND SEQUENCE



MODULE DESCRIPTIONS

Module DES101: Sketching and Drawing Fundamentals

In this module, the student develops basic sketching and drawing skills that can be used and enhanced through further design activity.

Module DES102: The Design Process

In this module, the student develops an understanding of the process of design by actively engaging in a variety of design tasks.

Module DES103: Design Techniques Fundamentals (2D/3D)

In this module, the student develops techniques appropriate to design through engaging in a variety of design activities in various contexts.

Module DES104: Design Problems Fundamentals (2D/3D)

In this module, the student develops and/or reinforces his or her ability to solve design problems by addressing and working through a variety of design problems in different contexts.

Module DES105: Computers in Design Fundamentals

In this module, the student develops basic skills and knowledge for using a personal computer and uses the personal computer as a tool in solving design problems.

Module DES106: Design Drafting Fundamentals

In this module, the student develops basic skills and knowledge of drafting and uses these as tools in solving design problems.

Module DES201: 2-D Design Applications

In this module, the student develops and applies knowledge, skills and techniques specific to two-dimensional design. Colour must be used in the majority of design activities.

Module DES202: 3-D Design Applications

In this module, the student develops and applies knowledge, skills and techniques specific to three-dimensional design. Colour must be used in the majority of design activities.

Module DES203: Computers in Design Applications

In this module, the student develops and applies knowledge, skills and techniques necessary to operate a personal computer and appropriate software, then uses these as tools in solving design problems.

Module DES204: Design Drafting Applications

In this module, the student develops and applies knowledge, skills and techniques of drafting and uses these as tools in solving design problems.

Module DES205: Technical Drawing Applications

In this module, the student develops and applies knowledge, skills and techniques of drafting to illustrate design solutions commonly associated with manufacturing and related areas.

Module DES206: The Evolution of Design

In this module, the student develops a historical framework for design by examining historical and current examples of design.

Module DES301: 2-D Design Studio (Form, Composition and Aesthetics)

In this module, the student applies knowledge, skills and techniques specific to two-dimensional design to resolve complex design problems, with particular emphasis on composition and aesthetics.

Module DES302: 2-D Design Studio (Communication and Human Factors)

In this module, the student applies knowledge, skills and techniques specific to two-dimensional design to resolve complex design problems in communication. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

Module DES303: 2-D Design Studio (Materials and Production Processes)

In this module, the student applies knowledge, skills and techniques specific to two-dimensional design to resolve complex design problems. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to production of designed items.

**Module DES304: 3-D Design Studio
(Form, Composition and Aesthetics)**

In this module, the student applies knowledge, skills and techniques specific to three-dimensional design to resolve complex design problems. Particular emphasis is placed on form and aesthetics.

**Module DES305: 3-D Design Studio
(Communication and Human Factors)**

In this module, the student applies knowledge, skills and techniques specific to three-dimensional design to resolve complex design problems. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

**Module DES306: 3-D Design Studio
(Materials and Production Processes)**

In this module, the student applies knowledge, skills and techniques specific to three-dimensional design to resolve complex design problems. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to the production of designed items.

**Module DES307: Living Environments
Studio (Form, Composition and Aesthetics)**

In this module, the student applies knowledge, skills in design to resolve complex design problems related to architectural, environmental and/or interior design.

**Module DES308: Living Environments
Studio (Communication and Human
Factors)**

In this module, the student applies knowledge, skills in design to resolve complex design problems related to architectural, environmental and/or interior design. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

**Module DES309: Living Environments
Studio (Materials and Production
Processes)**

In this module, the student applies knowledge, skills in design to resolve complex design problems related to architectural, environmental and/or interior design. Particular emphasis is placed on the selection and use of appropriate

materials, processes and systems as they apply to the production of designed items.

**Module DES310: Computer Aided Design
and Modelling**

In this module, the student uses a personal computer and appropriate software to solve design problems requiring Computer Assisted Design (CAD) for resolution.

**Module DES311: Design Drafting Studio
(Space, Form and Aesthetics)**

In this module, the student applies knowledge, skills and techniques of drafting in solving design problems with particular emphasis on the interrelationship of space and form, and on aesthetics.

**Module DES312: Design Drafting Studio
(Communication and Human Factors)**

In this module, the student applies knowledge, skills and techniques of drafting in solving design problems. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

**Module DES313: Design Drafting Studio
(Materials and Production Processes)**

In this module, the student applies knowledge, skills and techniques of drafting in solving design problems. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to the production of designed items.

**Module DES314: Technical Drawing Studio
(Space, Form and Aesthetics)**

In this module, the student applies knowledge, skills and techniques of drafting to precisely illustrate designed solutions in preparation for fabrication, manufacturing and/or mass production.

**Module DES315: Technical Drawing Studio
(Communication and Human Factors)**

In this module, the student applies knowledge, skills and techniques of drafting to precisely illustrate designed solutions, recognizing the impact design has on human beings and how design is influenced by the need to serve human purpose.

**Module DES316: Technical Drawing Studio
(Materials and Production Processes)**

In this module, the student applies knowledge, skills and techniques of drafting to precisely illustrate designed solutions. Particular emphasis is placed on the accurate representation of materials, processes and systems as they apply to the production of designed items.

Module DES317: Visualizing the Future

In this module, the student uses his or her knowledge and skills to develop design solutions for future scenarios and to consider the role of the designer in the future.

**Module DES318: The Business and
Profession of Design**

In this module, the student develops an understanding of the business aspect of the design profession including educational qualifications, opportunities in design and some of the issues designers face.

Module DES319: Portfolio Presentation

In this module, the student prepares a portfolio for a specific purpose such as entry into the workplace or a post-secondary institution.

**Modules DES107, DES108, DES207, DES208,
DES320, DES321: Design Drafting Activity
Modules**

In these modules, the student identifies a specific design problem or area of design inquiry, develops a design plan and works through that plan to resolve the problems or satisfy his or her question.. Students require very little (if any) direct instruction in this modules.

C. CURRICULUM AND ASSESSMENT STANDARDS

CURRICULUM STANDARDS

Curriculum standards are expressed through learner expectations, which describe the competencies that students are expected to develop. They require students to be active learners who can combine knowledge, skills and attitudes within an applied context.

Learner expectations for Design Studies are categorized in three, progressively detailed stages: strand, module and specific learner expectations.

Strand Learner Expectations

Strand learner expectations describe the overall characteristics of the Design Studies program and students actively participating in that program. They also form the basis for specific learner expectations within each module. Students working successfully in Design Studies will be able to:

- demonstrate creativity and innovation
- demonstrate aesthetic awareness
- use historical research as one basis for design activity
- identify and solve problems
- work in two and three dimensions
- work individually and as a team member
- recognize the value of technology and use it appropriately and effectively
- demonstrate and practise safe and effective work habits and attitudes
- develop and apply personal and interpersonal, verbal and non-verbal communication and presentation skills
- develop the ability to recognize, appreciate and create appropriate design solutions

- develop a working knowledge of tools, materials and processes associated with specific tasks
- appreciate that design has an impact upon the environment
- develop and maintain a design journal
- develop and maintain a portfolio of design solutions.

Module Learner Expectations

Module learner expectations provide an overall curricular focus for each module. They describe what the student should know and be able to do to successfully complete the module.

Specific Learner Expectations

Specific learner expectations define the scope of learning, or content, to be covered within each module. They are a combination of knowledge, skills and attitudes and form the basis for assessment. Specific learner expectations for Design Studies modules are identified on pages 11 through 74.

It is often helpful to jot down notes and ideas related to specific parts of the curriculum. A column has been provided in each module for this purpose. Some notes and ideas have been provided for the modules, particularly if the concept or related learner expectation(s) is new. Teachers are encouraged to add their own notes and ideas as required.

ASSESSMENT STANDARDS

Assessment standards describe the conditions and criteria for determining whether or not a student's performance meets the required standard. Assessment standards for each module in Design Studies are under development.

MODULE DES101: SKETCHING AND DRAWING FUNDAMENTALS

Level: Introductory

Theme: General Design

Type: Recommended for all Design Studies students

In this module, the student develops basic sketching and drawing skills that can be used and enhanced through further design activity.

Module Learner Expectations

The student will:

- develop basic knowledge, skills and processes in sketching and drawing with teacher guidance
- use sketching and drawing skills in the context of simple problem solving as outlined in a design brief.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Skills and Techniques	<p><i>The student will:</i></p> <ul style="list-style-type: none">● engage in various sketching and drawing activities; e.g., gesture, contour, tonal, isometric perspective, croquis● visually interpret real objects; e.g., human forms, natural and manufactured objects, artifacts from different materials with differing textures and reflective properties● be given the opportunity to use more than one medium (e.g., pencil, chalk, coloured marker, ink, paint, air brush, computer-based drawing/ graphics/ Computer Assisted Design [CAD]) to draw and sketch.	<ul style="list-style-type: none">● The ability to generate ideas and to visually express them is an essential skill for design students. This module will provide students with basic sketching and drawing skills. These skills will be further developed through design activity in subsequent design modules.● Different media provide different results and students need to be aware of this. Skills in the use of various media will develop as students engage in other design activities.
Elements and Principles of Design	<ul style="list-style-type: none">● recognize the design elements (line, shape, form, space, texture, colour) and principles (balance, emphasis, pattern and repetition, rhythm, movement, unity) as they apply to composition and form.	<ul style="list-style-type: none">● Awareness of the elements and principles of design will increase with each design challenge. Students need only recognize the existence of these elements and principles in this module.

MODULE DES101: SKETCHING AND DRAWING FUNDAMENTALS (continued)

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● sketch/draw several ideas in response to a simple problem as outlined in a design brief.	<ul style="list-style-type: none">● Students need to recognize the importance of sketching and drawing in Design. They need to visualize ideas and potential solutions to design problems.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none">● maintain a portfolio of ongoing design activity.	<ul style="list-style-type: none">● The portfolio will provide a developmental record of the student's breadth and depth of design capability. It should be updated upon completion of each design task. Over time, less important examples of work should be replaced with more significant pieces.

MODULE DES102: THE DESIGN PROCESS

Level: Introductory

Theme: General Design

In this module, the student develops an understanding of the process of design by actively engaging in a variety of design tasks.

Module Learner Expectations

The student will:

- use a design process to solve simple problems
- solve simple two-dimensional, three-dimensional and combined two-dimensional and three-dimensional design problems with teacher guidance.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● follow through a design process, which may include:<ul style="list-style-type: none">– identifying the need/problem– researching the problem– generating ideas and visualizing potential solutions; e.g., through drawing, computer modelling, three-dimensional modelling– choosing the most promising idea (the idea that seems to best meet the need identified in the design brief)– making/modelling the idea into a solution– presenting the solution– evaluating the solution	<ul style="list-style-type: none">● Design tends to be an interactive process; i.e., while the process of design may appear to be linear, students will typically revisit steps as the design activity progresses.● Presentation of work at logical junctures within the planning and process stages provides an opportunity for students to share ideas, to gather ideas for their own projects, to develop their presentation skills and to build confidence in their abilities.

MODULE DES102: THE DESIGN PROCESS (continued)

Concept	Specific Learner Expectations	Notes
Applied Problem Solving (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● address one two-dimensional design problem (e.g., poster, brochure, repetitive pattern, personal monogram), one three-dimensional design problem (e.g., cardboard desk organizer, cloth locker organizer, catapult) and one problem combining two- and three-dimensional design (e.g., cereal container, package for a festive ornament, model of a museum display or store window display) ● select and use appropriate tools and materials as outlined in the design brief. 	<ul style="list-style-type: none"> ● The product/solution to the problem will be determined by the need as stated in the design brief. ● Successful designers tend to have a broad range of experience. Having students engage in a variety of design tasks will help to broaden their horizons and enhance their ability to design. ● Teachers may wish to limit tools and materials to provide specific constraints to the design problem.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	<ul style="list-style-type: none"> ● Critiques of completed projects provide a venue for students to present their work and to celebrate their success with their peers. Participation guidelines should be established and clearly understood by students before a critique occurs. ● Students can track the steps they took and materials/processes they used in solving their design brief. Their journal can become a future reference source. It is also a good mechanism for assessing process.

MODULE DES103: DESIGN TECHNIQUES FUNDAMENTALS (2D/3D)

Level: Introductory

Theme: General Design

In this module, the student develops techniques appropriate to design through engaging in a variety of design activities in various contexts.

Module Learner Expectations

The student will:

- apply basic techniques in two- and three-dimensional design to solve design problems
- identify and use elements and principles of design in solving design problems.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● select two or more design problems in two or three dimensions and work them through, using a process of design● use basic techniques common to two- and three-dimensional design (e.g., sketching, drawing, measuring, calculating, cutting, joining, finishing) in working through design problems● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Teachers may wish to prescribe design briefs for their students in this module in order to ensure specific techniques are learned.● Students are expected to work within the constraints identified in each design brief. Constraints related to materials, time, function, aesthetics, economics, etc., will require students to assign priority to optimize their result. Students will need guidance to learn the decision-making skills necessary to do this.
Elements and Principles of Design	<ul style="list-style-type: none">● identify the elements and principles of design and indicate how they have been used in the context of the problems addressed.	

MODULE DES103: DESIGN TECHNIQUES FUNDAMENTALS (2D/3D) (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES104: DESIGN PROBLEMS FUNDAMENTALS (2D/3D)

Level: Introductory

Theme: General Design

In this module, the student develops and/or reinforces his or her ability to solve design problems by addressing and working through a variety of design problems in different contexts.

Module Learner Expectations

The student will:

- address simple two-dimensional, three-dimensional and/or combined two- and three-dimensional design problems
- work as a member of a design team.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● work through a design process to solve two-dimensional, three-dimensional and/or combined two- and three-dimensional design problems● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● In this module, teachers should provide a selection of level-appropriate design briefs for students to choose from. Students should work through the briefs with less specific direction from the teacher. There is an opportunity for students to work in design teams rather than individually.● Teachers may wish to provide a wider range of tools and materials than those provided in the Design Techniques Fundamentals module, to provide students with a greater resource base to choose from. The choice of materials and tools made by the students can be one indicator of their level of capability in design.
Teamwork	<ul style="list-style-type: none">● work in a design team through at least one design activity.	

MODULE DES104: DESIGN PROBLEMS FUNDAMENTALS (2D/3D) (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES105: COMPUTERS IN DESIGN FUNDAMENTALS

Level: Introductory

Theme: Design Drafting

In this module, the student develops basic skills and knowledge for using a personal computer and uses the personal computer as a tool in solving design problems.

Module Learner Expectations

The student will:

- demonstrate basic knowledge and skills of computer operation
- use a computer as a tool to assist in solving simple design problems.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Skills and Techniques	<p><i>The student will:</i></p> <ul style="list-style-type: none">● perform the following basic computer operations:<ul style="list-style-type: none">– start up and close down a computer– load and close programs– create and save personal files on a floppy disk and/or a hard drive– generate text through word-processing and/or desktop publishing (DTP)– generate images through draw, graphics and/or CAD programs– print generated work on a peripheral printer● describe what they are doing verbally and/or in writing.	<ul style="list-style-type: none">● Some students may have the background to perform these operations upon entering the module.
Applied Problem Solving	<ul style="list-style-type: none">● work through a design process to solve simple problems as outlined in a design brief using the personal computer and specified software● generate text and images with a personal computer and software as specified in a design brief.	<ul style="list-style-type: none">● Teachers will determine the computer and software students will use.● Teachers may wish to specify design briefs for their students in this module in order to ensure specific computer applications are learned.

MODULE DES105: COMPUTERS IN DESIGN FUNDAMENTALS (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none">● participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULE DES106: DESIGN DRAFTING FUNDAMENTALS

Level: Introductory

Theme: Design Drafting

In this module, the student develops basic skills and knowledge of drafting and uses these as tools in solving design problems.

Module Learner Expectations

The student will:

- learn basic drafting skills and practices and use them to resolve simple design problems with teacher guidance
- produce pictorial representations in response to design problems.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● work through a design process to solve simple problems● become aware of drafting conventions and techniques through engaging in a design project.	<ul style="list-style-type: none">● Students should learn drafting skills and techniques within the context of solving design problems rather than in isolation. In this way they will recognize the value of the techniques and be able to consider how the same techniques may be used in different contexts. Students may use traditional drafting technology, CAD, or other technology specified by the teacher during this module.
Skills and Techniques	<ul style="list-style-type: none">● generate working drawings as part of the resolution of each design brief	<ul style="list-style-type: none">● In this module, students should engage in a variety of activities based on problem solving. Teachers may find that five drawings will be sufficient for students to develop skills and understanding in this area.

MODULE DES106: DESIGN DRAFTING FUNDAMENTALS (continued)

Concept	Specific Learner Expectations	Notes
Skills and Techniques (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● produce at least one isometric, one oblique and one, one-point mechanical perspective drawing or at least one flat pattern design within the context of the design projects. 	<ul style="list-style-type: none"> ● “Drafting” may be applied in a number of contexts beyond the drafting table or terminal. One of these is flat pattern design within the fashion industry. This module exemplifies the linkage and transferability between traditional disciplines.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES201: 2-D DESIGN APPLICATIONS

Level: Intermediate

Theme: General Design

In this module, the student develops and applies knowledge, skills and techniques specific to two-dimensional design. Colour must be used in the majority of design activities.

Module Learner Expectations

The student will:

- apply techniques and processes learned at the introductory level to more complex two-dimensional design problems
- use colour within a designed solution.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● follow through a design process to solve two-dimensional design problems; e.g., CD covers, sports graphics, newspaper or magazine advertisements, billboards or wall murals, corporate logos or neon graphics● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Intermediate level Design Studies students must take a problem as given, generate ideas for a solution and work them through. The teacher will need to teach more advanced techniques, or direct their students to appropriate resources, but the responsibility for problem solving should rest with the student.
Elements and Principles of Design	<ul style="list-style-type: none">● demonstrate his or her understanding of colour (theory and practice) within the solution of at least one design● define and give examples of hue, value, chroma	<ul style="list-style-type: none">● Students may already have an understanding of colour theory through previous experience in Design Studies, Art or Communication Technologies. Students need this transferable knowledge if they are to use colour effectively in design.

MODULE DES201: 2-D DESIGN APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Elements and Principles of Design (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> list the colours on a 12-hue colour circle and specify the primary, secondary and tertiary colours identify at least three colour harmonies; e.g., monochromatic, triad, complementary, analogous. 	<ul style="list-style-type: none"> Many design solutions will not be completed full size but will be “scale” models. For example, a student might prepare a scale model of a mural that could be painted on a building. Students can learn the concept of scale in this context then apply it repeatedly in other design tasks.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> participate in a final presentation critique maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity maintain a portfolio of ongoing design activity. 	

MODULE DES202: 3-D DESIGN APPLICATIONS

Level: Intermediate

Theme: General Design

In this module, the student develops and applies knowledge, skills and techniques specific to three-dimensional design. Colour must be used in the majority of design activities.

Module Learner Expectations

The student will:

- apply techniques and processes learned at the introductory level to more complex three-dimensional design problems
- use colour within a designed solution.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● follow through a design process to solve three-dimensional design problems; e.g., a toy made of wood or fabric for a pre-school aged child, a sustained motion machine, a “boat” made of wood, paper, glue and shellac or a seat for a patio or garden● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Students should examine various types of structures to determine their qualities. From this they will learn why some structures are successful while others fail. This knowledge can then be applied to their design tasks.● Scale models may be produced in this module. For example, a student may produce a scale model of a chair, a crane or a bridge. The model could be tested for strength and durability, then if appropriate, a final prototype could be produced.
Elements and Principles of Design	<ul style="list-style-type: none">● demonstrate his or her understanding of colour (theory and practice) within the solution of at least one design● define and give examples of hue, value, chroma	

MODULE DES202: 3-D DESIGN APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Elements and Principles of Design (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● list the colours on a 12-hue colour circle and specify the primary, secondary and tertiary colours ● identify at least three colour harmonies; e.g., monochromatic, triad complementary, analogous. 	
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES203: COMPUTERS IN DESIGN APPLICATIONS

Level: Intermediate

Theme: Design Drafting

In this module, the student develops and applies knowledge, skills and techniques necessary to operate a personal computer and appropriate software, then uses these as tools in solving design problems.

Module Learner Expectations

The student will:

- use a computer as a design tool in a variety of contexts
- recognize how a personal computer can be used as a research tool.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● use the personal computer and specified software to resolve problems as outlined in design briefs	<ul style="list-style-type: none">● Students should be able to use a computer in design without teacher assistance. Students should also be able to suggest several ways the computer could be used in design.
Skills and Techniques	<ul style="list-style-type: none">● identify, select and use appropriate software (e.g., draw, graphics, CAD, DTP, word processing) in the context of design● generate text and images on a personal computer in response to a problem specified in a design brief and print work generated● use a computer to conduct research (search for capture/retrieve and store information) and/or describe how a computer may be used as a research tool.	<ul style="list-style-type: none">● Teachers may provide students with several options as to the computer software they may use.● Students completing this module should be fully versed in basic computer use.● Students should know how to use the computer as a research tool. This might include accessing information from an internal or on-line database, a CD ROM, an electronic bulletin board system (BBS) or some other source in the design facility, school, community library, etc.

MODULE DES203: COMPUTERS IN DESIGN APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none">● participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULE DES204: DESIGN DRAFTING APPLICATIONS

Level: Intermediate

Theme: Design Drafting

In this module, the student develops and applies knowledge, skills and techniques of drafting and uses these as tools in solving design problems.

Module Learner Expectations

The student will:

- apply basic drafting skills and practices to resolve design problems
- produce pictorial representations in response to design problems.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● work through a design process to solve problems● use drafting conventions and techniques as required to resolve design problems● use appropriate tools and materials as outlined in each design brief.	<ul style="list-style-type: none">● Students may use this module in several contexts. These include architecture, landscape design and flat pattern design for fashion. Students may use traditional drafting equipment, CAD or other technology specified by the teacher to complete the module.
Skills and Techniques	<ul style="list-style-type: none">● generate accurate working drawings as part of the resolution of each design brief● produce at least one of each of the following drawings: detail, assembly, section, auxiliary or at least one flat pattern for fashion design within the context of the design projects	<ul style="list-style-type: none">● In this module, students should engage in a variety of activities that involve generating working drawings based in a design problem. The specific skills should be taught within this context. Some teachers may take a single theme (e.g., a lake cottage, bus shelter, food kiosk or house boat) as the context for learning. Other teachers will want their students to engage in two or more smaller projects.

MODULE DES204: DESIGN DRAFTING APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Skills and Techniques (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● use appropriate terminology within the context of a design project. 	<ul style="list-style-type: none"> ● Students need to be able to communicate in a common language. Learning specific terminology associated with this area will help the students communicate effectively to each other and to outside parties.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES205: TECHNICAL DRAWING APPLICATIONS

Level: Intermediate

Theme: Design Drafting

In this module, the student develops and applies knowledge, skills and techniques of drafting to illustrate design solutions commonly associated with manufacturing and related areas.

Module Learner Expectations

The student will:

- apply basic drafting skills and practices to illustrate design solutions specific to manufacturing and related areas
- produce accurate working drawings in the context of illustrating a designed solution.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Skills and Techniques	<p><i>The student will:</i></p> <ul style="list-style-type: none">● use appropriate tools and materials as outlined in a design brief to illustrate design solutions● generate accurate working drawings as part of the resolution of each design brief● produce at least one of each of the following drawings: detail; assembly; section; auxiliary; exploded view, with an example of a welded or threaded fastener within the context of the design projects engaged in● interpret standards and codes as they apply within the context of the brief● use appropriate terminology.	<ul style="list-style-type: none">● The focus of this module is on preparing working drawings for the purpose of manufacturing, product production, process piping, electrical systems, plumbing systems, etc. Students may use traditional drafting equipment, CAD or other technologies specified by the teacher to complete the module.● In this module, students should engage in a variety of activities that involve generating working drawings based in a design problem. The specific skills should be taught within this context. Some teachers may take a single theme (e.g., process piping for an oil and gas refinery) as the context for learning. Other teachers will want their students to engage in two or more smaller projects; e.g., coin stamp or a water faucet.

MODULE DES205: TECHNICAL DRAWING APPLICATIONS (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none">● participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULE DES206: THE EVOLUTION OF DESIGN

Level: Intermediate

Theme: Business/Issues/History

In this module, the student develops a historical framework for design by examining historical and current examples of design.

Module Learner Expectations

The student will:

- research historical and contemporary design and present his or her findings.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Research in Design	<p><i>The student will:</i></p> <ul style="list-style-type: none">● conduct research in design● identify and explain the relationship between a design solution in the past and a current design solution (e.g., buildings, graphics, fashion and transportation) including the influence of cultural, global, ethical and environmental conditions on the solution.	<ul style="list-style-type: none">● This module will help students explore different avenues of design by examining the work of designers through history. Several different approaches may be taken. For example, students might study the work of a designer working today and compare it with the work of a designer from the 1930s; they might take an old artifact and try to reproduce it; they might follow the development of a particular product, process or system (e.g., brewing coffee or the development of plastic) through history to the present day. Students need to consider the influences of cultural, ethical, social and/or environmental conditions on design. The point of the module is to give students a larger sense of design.

MODULE DES206: THE EVOLUTION OF DESIGN (continued)

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none"> work through a design process to produce a product based on the research conducted (e.g., a replica of an artifact, a research paper, a media presentation) using tools and materials as outlined in a design brief. 	<ul style="list-style-type: none"> In this module, students might develop several different products including a reproduction or scale model of an artifact designed and used in the past, sequential drawings, or photographs of an object that has evolved over time, presentation panels depicting “designed” artifacts from a particular culture, sets for a “period” drama or a term paper on a selected topic.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> participate in a final presentation critique maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity maintain a portfolio of ongoing design activity. 	

MODULE DES301: 2-D DESIGN STUDIO (FORM, COMPOSITION AND AESTHETICS)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills and techniques specific to two-dimensional design to resolve complex design problems, with particular emphasis on composition and aesthetics.

Module Learner Expectations

The student will:

- address complex problems in two-dimensional design
- use elements and principles of design as they apply to composition in two-dimensional design
- make rational judgments with respect to aesthetic quality in two-dimensional design solutions.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address at least two different two-dimensional design problems; e.g., displays/exhibits, packaging graphics, textiles, advertising, murals, signage, posters, calendars, billboards, maps and charts● identify each problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Some students may take on a project of greater magnitude and therefore not be required to complete two projects.● Advanced level students must be able to write out design briefs for themselves and others. They must be able to organize their work, select appropriate tools, equipment, materials, etc., to make the project successful. It is important that they be given responsibility for their learning and that the teacher is there to support them and provide guidance where necessary.

MODULE DES301: 2-D DESIGN STUDIO (FORM, COMPOSITION AND AESTHETICS)
(continued)

Concept	Specific Learner Expectations	Notes
Elements and Principles of Design	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● identify the elements and principles of design used in the solution of each design problem and explain how their use has contributed to the aesthetics and function of the solution ● rationalize decisions made during designing and indicate how these decisions affect the aesthetic quality of the solution. 	<ul style="list-style-type: none"> ● Students should be able to identify the elements and principles of design and use them effectively in resolving design tasks. It is important that they recognize how they can use the elements and principles to their best advantage. ● Decision making is central to successful design. Students at this level must make decisions and learn from the results.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	<ul style="list-style-type: none"> ● Advanced students should be able to lead a critique session. They should be given opportunity to do so at some point in their advanced level program.

MODULE DES302: 2-D DESIGN STUDIO (COMMUNICATION AND HUMAN FACTORS)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills and techniques specific to two-dimensional design to resolve complex design problems in communication. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

Module Learner Expectations

The student will:

- address complex problems in two-dimensional design involving communication
- identify examples of effective and ineffective two-dimensional design
- recognize ways human factors affect two-dimensional design solutions.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address at least two different two-dimensional design problems involving communication; e.g., signs, advertising layouts, maps, packaging graphics, fabric motifs, flow diagrams, assembly drawings, cutting layouts, organizational charts● identify each problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	
Human Factors and Design	<ul style="list-style-type: none">● identify and collect examples of “designed” communication and make judgments as to their effectiveness	<ul style="list-style-type: none">● Advanced level students must be able to determine levels of quality. They must apply this knowledge in their own design work.

MODULE DES302: 2-D DESIGN STUDIO (COMMUNICATION AND HUMAN FACTORS)
(continued)

Concept	Specific Learner Expectations	Notes
Human Factors and Design (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● select at least three examples of commercially generated two-dimensional design and describe the impact of the examples on him or her personally (e.g., social, psychological, impact on him or her as a human being, how he or she feels about the design) ● describe at least three ways human factors (e.g., physical, mental, ethical, cultural) can affect two-dimensional design; e.g., colour acuity, cultural symbolism, response to size, shape, prominence. 	<ul style="list-style-type: none"> ● Design is done for a purpose—to meet a client's need. It is important that students realize that not all designed ideas work. It is also crucial that students recognize the relationship of design to the human condition and the impact design can have on them and others, socially, psychologically and emotionally as well as physically. ● Designed items (e.g., communication systems, products) have a great impact on people. Students must recognize this, both as designers and as consumers of design. This study relates very closely to notions of consumerism and the place of design in a "consumer" society.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES303: 2-D DESIGN STUDIO (MATERIALS AND PRODUCTION PROCESSES)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills and techniques specific to two-dimensional design to resolve complex design problems. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to production of designed items.

Module Learner Expectations

The student will:

- address complex problems in two-dimensional design involving materials and production processes
- study the properties of various materials in the context of their use in two-dimensional design
- study production processes, design a process to reproduce a two-dimensional product in quantity.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● solve a design problem involving the production of a designed product in quantity● identify each problem, write a design brief and prepare a plan for resolution● select and use appropriate tools and materials as outlined in the design brief● rationalize the selection of materials used in the design project based on their physical properties.	<ul style="list-style-type: none">● Some students may want to produce several simple products; others may want to produce a single, more complex product.● Advanced level students must be able to select and use appropriate materials and equipment and rationalize their selection.

MODULE DES303: 2-D DESIGN STUDIO (MATERIALS AND PRODUCTION PROCESSES)
(continued)

Concept	Specific Learner Expectations	Notes
Production and Management	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● select, organize and manage a production team ● prepare a written submission describing the production process used, indicating key elements of that process and the management task (optionally supported by illustrations, photographs, etc.). 	<ul style="list-style-type: none"> ● Some students will be natural organizers and managers while others will need to learn these skills. Taking on different team roles will help students recognize their ability and the areas requiring development.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES304: 3-D DESIGN STUDIO (FORM, COMPOSITION AND AESTHETICS)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills and techniques specific to three-dimensional design to resolve complex design problems. Particular emphasis is placed on form and aesthetics.

Module Learner Expectations

The student will:

- address complex problems in three-dimensional design
- use elements and principles of design as they apply to composition in three-dimensional design
- make rational judgments with respect to aesthetic quality in three-dimensional design solutions.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address at least two different three-dimensional design problems; e.g., displays, exhibits, dramatic sets, products, packaging, furniture construction, mobile shelters, food or beverage containers, machinery design and/or modification, clothing construction● identify each problem, write a design brief and prepare a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Designers are now using computer-based three-dimensional design programs to create their initial concepts. They then produce production plans from their three-dimensional computer model, then build a physical model or prototype.

MODULE DES304: 3-D DESIGN STUDIO (FORM, COMPOSITION AND AESTHETICS)
(continued)

Concept	Specific Learner Expectations	Notes
Elements and Principles of Design	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● identify the elements and principles of design used in the solution of each design problem and explain how their use has contributed to the aesthetics and function of the solution ● rationalize decisions made during designing and indicate how these decisions affect the aesthetic quality of the solution. 	
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES305: 3-D DESIGN STUDIO (COMMUNICATION AND HUMAN FACTORS)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills and techniques specific to three-dimensional design to resolve complex design problems. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

Module Learner Expectations

The student will:

- address complex problems in three-dimensional design that results in a product for human use
- identify examples of ideas and/or information communicated through three-dimensional design
- recognize ways human factors affect three-dimensional design solutions.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address at least two different three-dimensional design problems; e.g., model vehicles, prototypes of products, garments, specialized packaging, marketing displays, tools and/or implements, kites● identify each problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	
Communication	<ul style="list-style-type: none">● identify and collect examples of three-dimensional design being used as a mechanism for communication; e.g., stop and yield signs, traffic lights, three-dimensional arrows.	

MODULE DES305: 3-D DESIGN STUDIO (COMMUNICATION AND HUMAN FACTORS)
(continued)

Concept	Specific Learner Expectations	Notes
Human Factors and Design	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● select at least three examples of commercially generated three-dimensional design and describe the personal impact of the examples ● provide at least three examples of how human factors (e.g., physical, mental, emotional, psychological, ethical, cultural) can affect three-dimensional design (e.g., size of products in relationship to human anatomy, toys of different materials or with different levels of complexity depending on the intended age group, the shape or orientation of a building as dictated by cultural custom). 	<ul style="list-style-type: none"> ● Design is done for a purpose. It is important that students realize that products are designed to meet a client's needs. Well-designed products will have a greater chance of success than poorly designed products. Students must recognize this, both as designers and as consumers of design. ● The impact of design on the social, psychological, emotional and physical well-being of people must be recognized by students and taken into account in their design work.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	<ul style="list-style-type: none"> ● Advanced students should be able to lead a critique session. They should be given opportunity to do so at some point in their advanced level program.

MODULE DES306: 3-D DESIGN STUDIO (MATERIALS AND PRODUCTION PROCESSES)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills and techniques specific to three-dimensional design to resolve complex design problems. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to the production of designed items.

Module Learner Expectations

The student will:

- address complex problems in three-dimensional design involving materials and production processes
- study the properties of various materials in the context of their use in three-dimensional design
- study production processes and, where possible, use a process to reproduce a three-dimensional design in quantity.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<i>The student will:</i> <ul style="list-style-type: none">● solve a design problem involving the production of a designed product in quantity● identify the problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief● rationalize the selection of materials used in the design project based on their physical properties.	
Production and Management	<ul style="list-style-type: none">● select, organize and manage a production team	

MODULE DES306: 3-D DESIGN STUDIO (MATERIALS AND PRODUCTION PROCESSES)
(continued)

Concept	Specific Learner Expectations	Notes
Production and Management (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● prepare a written submission describing the production process used, indicating key elements of that process and the management task (optionally supported by illustrations, photographs, etc.). 	
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES307: LIVING ENVIRONMENTS STUDIO (FORM, COMPOSITION AND AESTHETICS)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills in design to resolve complex design problems related to architectural, environmental and/or interior design.

Module Learner Expectations

The student will:

- address complex problems in one or more Living Environment themes (architectural design, environmental design, interior design)
- use elements and principles of design as they apply to composition and form in architectural, environmental or interior design
- make rational judgments with respect to aesthetic quality in architectural, environmental or interior design.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address at least two different design problems; e.g., design a personal living space, a living space for a hostile environment, a survival shelter, a commercial space, a park, a restaurant, or a pre-fabricated living space with components that can be assembled on location● identify each problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	
Elements and Principles of Design	<ul style="list-style-type: none">● identify the elements and principles of design used in the solution of each design problem and explain how their use has contributed to the solution	

MODULE DES307: LIVING ENVIRONMENTS STUDIO (FORM, COMPOSITION AND AESTHETICS) (continued)

Concept	Specific Learner Expectations	Notes
Elements and Principles of Design (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● rationalize decisions made during designing and indicate how these decisions affect the aesthetic quality of the solution. 	
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES308: LIVING ENVIRONMENTS STUDIO (COMMUNICATION AND HUMAN FACTORS)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills in design to resolve complex design problems related to architectural, environmental and/or interior design. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

Module Learner Expectations

The student will:

- address complex problems in one or more Living Environment themes (architectural design, environmental design, interior design) that affect the human condition
- identify communication systems used in personal and public living spaces
- recognize ways human factors affect architectural, environmental and interior design.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address at least two different design problems; e.g., signage systems for buildings, a park or museum interpretive centre, a drop-in centre for seniors● identify each problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	
Communication	<ul style="list-style-type: none">● identify and collect examples of communication systems used in their community; e.g., in homes, public buildings, parks, on roadways.	<ul style="list-style-type: none">● These examples may be collected in several ways; e.g., photographed, video taped, sketched/drawn, presented as a montage of clippings from newspapers and magazines

MODULE DES308: LIVING ENVIRONMENTS STUDIO (COMMUNICATION AND HUMAN FACTORS) (continued)

Concept	Specific Learner Expectations	Notes
Human Factors and Design	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● present at least three examples of the impact of his or her own living environment; e.g., the impact of different parts of the school on what he or she is able to do, his or her behavioural response to the atmosphere of a fast food restaurant and a formal dining restaurant, the effect of different types of furniture on his or her activity level ● provide at least three examples of how human factors (e.g., physical, mental, ethical, cultural) can affect architectural, environmental or interior design (e.g., size of doorways, temperature controls, colour selections). 	<ul style="list-style-type: none"> ● Design is done for a purpose. It is important that students realize the impact the designed world has upon their daily lives. Their reaction to a hard chair versus a soft chair serves as one example of this. As designers and as consumers of design, students must recognize the impact of design on the living environment and the impact of the environment and the human condition on design.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES309: LIVING ENVIRONMENTS STUDIO (MATERIALS AND PRODUCTION PROCESSES)

Level: Advanced

Theme: General Design

In this module, the student applies knowledge, skills in design to resolve complex design problems related to architectural, environmental and/or interior design. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to the production of designed items.

Module Learner Expectations

The student will:

- address complex problems in one or more Living Environment themes (architectural design, environmental design, interior design) related to materials and/or production processes
- study the properties of various materials in the context of their use in architecture, environmental and/or interior design
- study production processes and, where possible, use a process to reproduce a design in quantity.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● solve a design problem involving the production of a designed product in quantity● identify each problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief● rationalize the selection of materials used in the design project based on their properties.	
Production and Management	<ul style="list-style-type: none">● select, organize and manage a production team	

MODULE DES309: LIVING ENVIRONMENTS STUDIO (MATERIALS AND PRODUCTION PROCESSES) (continued)

Concept	Specific Learner Expectations	Notes
Production and Management (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● prepare a written submission describing the production process used, indicating key elements of that process and the management task (optionally supported by illustrations, photographs, etc.). 	
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES310: COMPUTER AIDED DESIGN AND MODELLING

Level: Advanced

Theme: Design Drafting

In this module, the student uses a personal computer and appropriate software to solve design problems requiring Computer Assisted Design (CAD) for resolution.

Module Learner Expectations

The student will:

- use a computer as a tool to solve complex design problems.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● apply the personal computer and specified software to resolve problems as outlined in design briefs	<ul style="list-style-type: none">● Students should be able to use a computer independently in this module.
Skills and Techniques	<ul style="list-style-type: none">● identify, select and use appropriate CAD and related software (e.g., three-dimensional modelling software) in the context of design● generate a three-dimensional model image and/or working drawings on a computer in response to a problem specified in a design brief and print work generated.	<ul style="list-style-type: none">● Teachers may provide students with several options as to the computer software they may use. Also see the related learner expectations in “3-D Design Studies (Form, Composition and Aesthetics)”.● Students completing this module should be able to use the computer as a design tool.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none">● participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULE DES311: DESIGN DRAFTING STUDIO (SPACE, FORM AND AESTHETICS)

Level: Advanced

Theme: Design Drafting

In this module, the student applies knowledge, skills and techniques of drafting in solving design problems with particular emphasis on the interrelationship of space and form, and on aesthetics.

Module Learner Expectations

The student will:

- use drafting techniques and practices in addressing complex problems in architectural, pattern and/or other design applications
- use elements and principles of design as they apply to space and form of the structure
- use elements and principles of design as they apply to composition of working drawings and models
- make rational judgments with respect to aesthetic quality of the structure.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address a complex design problem; e.g., a passive solar house, a terraced garden with a stream running through it, a formal garment● identify the problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Students may work in several different contexts in this module including architecture, landscape and flat pattern design for fashion and/or manufacturing. Students may use traditional drafting equipment, CAD or other technology specified by the teacher to complete the module.● Students can work in teams in this module.

MODULE DES311: DESIGN DRAFTING STUDIO (SPACE, FORM AND AESTHETICS)
(continued)

Concept	Specific Learner Expectations	Notes
Skills and Techniques	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● generate accurate working drawings and/or models as part of the resolution of the design brief including at least one of each of the following drawings: two-dimensional and/or three-dimensional geometrical perspective, oblique projections, or the surface development for at least one flat pattern design within the context of the design project ● select and produce examples of the following drawings based on the requirements of the design brief: <ul style="list-style-type: none"> – intersections and interpenetrations – isometric projections – sectional drawings/revolutions – exploded views. 	<ul style="list-style-type: none"> ● In this module, students should have sufficient background to be able to independently generate the necessary working drawings and/or models. Teachers will need to teach the detailed aspects of certain techniques but these should be taught as much as possible as they arise within the context of the design task.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES312: DESIGN DRAFTING STUDIO (COMMUNICATION AND HUMAN FACTORS)

Level: Advanced

Theme: Design Drafting

In this module, the student applies knowledge, skills and techniques of drafting in solving design problems. Particular emphasis is placed on the impact design has on human beings and how design is influenced by the need to serve human purpose.

Module Learner Expectations

The student will:

- use drafting techniques and practices in addressing complex problems in architectural, pattern and/or other design applications
- use drafting conventions and techniques to communicate ideas
- recognize that the designer must design for human beings and that the resulting product will affect its users.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address a complex design problem; e.g., a passive solar house, a terraced garden with a stream running through it, a formal garment● identify the problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	

MODULE DES312: DESIGN DRAFTING STUDIO (COMMUNICATION AND HUMAN FACTORS) (continued)

Concept	Specific Learner Expectations	Notes
Skills and Techniques	<p><i>The student will:</i></p> <ul style="list-style-type: none"> • within the context of a design brief, produce the following as required: <ul style="list-style-type: none"> – two-dimensional geometrical perspective – three-dimensional geometrical perspective – oblique projections – intersections and interpenetrations – isometric projections – sectional drawings/revolutions – exploded views – surface developments. 	<ul style="list-style-type: none"> • Students should select the appropriate techniques and procedures to meet the needs of the project they engage in. The teacher's role will be to help them choose wisely and to guide rather than direct their design activity.
Human Factors and Design	<ul style="list-style-type: none"> • present at least three examples of the impact of architecture on himself or herself; e.g., what he or she likes or dislikes about the school and how it might be improved, particular buildings that he or she likes or dislikes, desirable features in a home he or she would design. 	<ul style="list-style-type: none"> • Students need to be constructively critical of their own designs and the designs of others. It is not good enough to "like" or "dislike" without a rationale. It is important that they recognize this both as designers and as consumers of design.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> • actively participate in a final presentation critique • maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity • maintain a portfolio of ongoing design activity. 	

MODULE DES313: DESIGN DRAFTING STUDIO (MATERIALS AND PRODUCTION PROCESSES)

Level: Advanced

Theme: Design Drafting

In this module, the student applies knowledge, skills and techniques of drafting in solving design problems. Particular emphasis is placed on the selection and use of appropriate materials, processes and systems as they apply to the production of designed items.

Module Learner Expectations

The student will:

- address complex problems in architectural, pattern and/or other design applications
- recognize the properties of various materials in the context of their use in architecture
- describe production processes used in architectural construction.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● produce a model of an architectural or landscape design based on a design brief● select and use appropriate tools and materials as outlined in the design brief● identify commonly used materials and techniques used in construction, and the properties that make them useful● rationalize the selection of materials used in the design project based on their properties.	<ul style="list-style-type: none">● It may be possible for students to test various materials as part of their selection process.
Production and Management	<ul style="list-style-type: none">● prepare a written submission describing production processes used in architectural, landscape construction, etc., and indicate key elements of those processes (optionally supported by illustrations, photographs, etc.).	<ul style="list-style-type: none">● It may be possible for students to visit construction sites and see houses and other buildings taking shape. This is a good linking module to the Construction Technologies strand.

MODULE DES313: DESIGN DRAFTING STUDIO (MATERIALS AND PRODUCTION PROCESSES) (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES314: TECHNICAL DRAWING STUDIO (SPACE, FORM AND AESTHETICS)

Level: Advanced

Theme: Design Drafting

In this module, the student applies knowledge, skills and techniques of drafting to precisely illustrate designed solutions in preparation for fabrication, manufacturing and/or mass production.

Module Learner Expectations

The student will:

- use drafting techniques and practices in addressing complex design problems related to engineering and/ or manufacturing
- use elements and principles of design as they apply to composition of working drawings and models
- make rational judgments with respect to aesthetic quality of his or her work.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address a complex design problem; e.g., an electrical or plumbing system for a house, a process piping system for a hot tub or swimming pool, a mold for a cast product, a machined gear system, manufacturing jigs● identify the problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	<ul style="list-style-type: none">● Students may work in several different contexts in this module including electrical, plumbing, process piping and manufacturing. Students may use traditional drafting equipment, CAD or other technology specified by the teacher to complete the module.
Skills and Techniques	<ul style="list-style-type: none">● generate accurate working drawings and/or models as part of the resolution of the design brief.	

MODULE DES314: TECHNICAL DRAWING STUDIO (SPACE, FORM AND AESTHETICS)
(continued)

Concept	Specific Learner Expectations	Notes
Skills and Techniques (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● within the context of a design brief, produce at least three working drawings selected from the following as required: <ul style="list-style-type: none"> - two-dimensional mechanical perspective - three-dimensional mechanical perspective - oblique projections - intersections and interpenetrations - isometric projections - sectional drawings/ revolutions - exploded views. 	<ul style="list-style-type: none"> ● Students should select the appropriate techniques and procedures to meet the needs of the project they engage in. The teacher's role will be to help them choose wisely and to guide rather than direct their design activity.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES315: TECHNICAL DRAWING STUDIO (COMMUNICATION AND HUMAN FACTORS)

Level: Advanced

Theme: Design Drafting

In this module, the student applies knowledge, skills and techniques of drafting to precisely illustrate designed solutions, recognizing the impact design has on human beings and how design is influenced by the need to serve human purpose.

Module Learner Expectations

The student will:

- use drafting techniques and practices in addressing complex design problems related to engineering and/or manufacturing
- use drafting conventions and techniques to communicate ideas
- recognize that the designer must design for human beings and that result will affect his or her safety, health, security and quality of life.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● address a complex design problem; e.g., an electrical or plumbing system for a house, a process piping system for a hot tub or swimming pool, a mold for a cast product, a machined gear system, manufacturing jigs● identify the problem, write a design brief and structure a plan for resolution● select and use appropriate tools and materials as outlined in the design brief.	

MODULE DES315: TECHNICAL DRAWING STUDIO (COMMUNICATION AND HUMAN FACTORS) (continued)

Concept	Specific Learner Expectations	Notes
Skills and Techniques	<p><i>The student will:</i></p> <ul style="list-style-type: none"> • within the context of a design brief, produce the following as required: <ul style="list-style-type: none"> – two-dimensional mechanical perspective – three-dimensional mechanical perspective – oblique projections – intersections and interpenetrations – isometric projections – sectional drawings/ revolutions – exploded views – surface developments. 	<ul style="list-style-type: none"> • Students should select the appropriate techniques and procedures to meet the needs of the project they engage in. The teacher's role will be to help them choose wisely and to guide rather than direct their design activity.
Human Factors and Design	<ul style="list-style-type: none"> • present at least three examples of the impact of manufacturing and engineering on himself or herself; e.g., the components of the school that are manufactured or engineered, and how they might be improved, manufactured goods that provide a high standard of comfort to him or her, the impact of failure of a product on human life. 	<ul style="list-style-type: none"> • Students need to be constructively critical of their own designs and the designs of others. It is not good enough to "like" or "dislike" without a rationale. It is important that they recognize this both as designers and as consumers of design.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> • actively participate in a final presentation critique • maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity • maintain a portfolio of ongoing design activity. 	

MODULE DES316: TECHNICAL DRAWING STUDIO (MATERIALS AND PRODUCTION PROCESSES)

Level: Advanced

Theme: Design Drafting

In this module, the student applies knowledge, skills and techniques of drafting to precisely illustrate designed solutions. Particular emphasis is placed on the accurate representation of materials, processes and systems as they apply to the production of designed items.

Module Learner Expectations

The student will:

- use drafting techniques and practices to address complex problems related to engineering and/or manufacturing
- recognize the properties of various materials in the context of their use in manufacturing and engineering
- describe production processes used in manufacturing and engineered construction.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● identify a product and draw/illustrate the manufacturing process of that product using drafting techniques and procedures● indicate the steps the product goes through during manufacture and suggest why the materials used are appropriate for the product● select and use appropriate tools and materials as outlined in the design brief● rationalize the selection of materials used in the design project based on their properties.	<ul style="list-style-type: none">● The processes used to produce products are many and varied. It is important that students understand that product manufacturing is a system of occurrences that are “designed”. By charting a manufacturing process, students will see how a product is manufactured, the steps within the system and the impact on the materials used in the process. They must also consider the environmental impact of the process.● It may be possible for students to test various materials as part of their selection process.

MODULE DES316: TECHNICAL DRAWING STUDIO (MATERIALS AND PRODUCTION PROCESSES) (continued)

Concept	Specific Learner Expectations	Notes
Production and Management	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● prepare a written submission describing production processes used in manufacturing of a machined or assembled product highlighting the key elements of that process (optionally supported by illustrations, photographs, etc.). 	<ul style="list-style-type: none"> ● It may be possible for students to visit a manufacturing site or to simulate a manufacturing situation based on the design as represented in the completed technical drawing.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none"> ● actively participate in a final presentation critique ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

MODULE DES317: VISUALIZING THE FUTURE

Level: Advanced

Theme: Business/Issues/History

In this module, the student uses his or her knowledge and skills to develop design solutions for future scenarios and to consider the role of the designer in the future.

Module Learner Expectations

The student will:

- consider a future problem and design a solution for it
- provide research findings supporting his or her design.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● write a design brief detailing the problem to be solved, and generate a designed solution● conduct research in future design and apply it to the design problem● rationalize design decisions made based on research findings.	<ul style="list-style-type: none">● This module will help students consider future design possibilities. The problems identified might have to do with space or undersea exploration, medicine or genetics, high fashion or survival gear. The possibilities are endless. The important feature of this module is to provide students with the impetus to positively challenge the future and to break away from their current paradigms.
The Designer's Role	<ul style="list-style-type: none">● describe the role and some of the challenges that will be faced by designers in the future● indicate how this role and these challenges will differ from those currently faced by designers.	

MODULE DES317: VISUALIZING THE FUTURE (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none">● actively participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULE DES318: THE BUSINESS AND PROFESSION OF DESIGN

Level: Advanced

Theme: Business/Issues/History

In this module, the student develops an understanding of the business aspect of the design profession including educational qualifications, opportunities in design and some of the issues designers face.

Module Learner Expectations

The student will:

- study the business and profession of design
- identify and consider various issues faced by designers.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● design a plan for a small design company (identify the area of design specialty, design a promotional plan, determine the logistics of design production, etc.)● conduct research into the business and profession of design (use reference sources, contact people working in a design field)● determine the opportunity for a designer in the immediate community and adjacent communities● identify the qualifications required of young designers by the design community.	<ul style="list-style-type: none">● This module provides an excellent opportunity for students to establish contacts in the design field of their choice. These contacts may be local, regional, provincial, national or international. Once a contact has been made, the student may be able to use this contact as a primary research source for the module. The issues faced by practitioners, their day-to-day activities and their background and training will provide the student with valuable insight into the business and profession of design.● This module could be addressed by a design team. The team could conduct individual and/or joint research and then make a joint presentation of the findings.
Issues in Design	<ul style="list-style-type: none">● identify three issues faced by designers and state how these issues might be dealt with.	

MODULE DES318: THE BUSINESS AND PROFESSION OF DESIGN (continued)

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio	<p><i>The student will:</i></p> <ul style="list-style-type: none">● actively participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULE DES319: PORTFOLIO PRESENTATION

Level: Advanced

Theme: Business/Issues/History

In this module, the student prepares a portfolio for a specific purpose such as entry into the workplace or a post-secondary institution.

Module Learner Expectations

The student will:

- prepare a presentation portfolio for the purpose of gaining entry into the workplace and/or post-secondary education.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Portfolio Definition and Preparation	<p><i>The student will:</i></p> <ul style="list-style-type: none">● determine the purpose of the portfolio being designed● select the most appropriate work for inclusion in the portfolio● prepare the selected work for inclusion in the portfolio (this might include remounting and/or reworking some pieces● write a supporting page introducing the student and providing a listing and short description of the portfolio contents.	<ul style="list-style-type: none">● It is extremely important for students to be able to present a well-crafted portfolio. The portfolio should exhibit the breadth and depth of the student's capabilities, and indicate his or her academic, personal management and teamwork skills. The portfolio may take several forms and be made up of several parts (e.g., flats of two-dimensional design and photography, photographs or slides of three-dimensional work, video tape, computer disk, etc., or any combination of the above). The student's collection of work retained during his or her studies in design will form the basis for this final presentation portfolio.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none">● actively participate in a final presentation critique● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity● maintain a portfolio of ongoing design activity.	

MODULES DES107, DES108, DES207, DES208, DES320, DES321: DESIGN DRAFTING ACTIVITY MODULES

Level: Introductory, Intermediate, Advanced

Theme: Student/Teacher Determined

In these modules, the student identifies a specific design problem or area of design inquiry, develops a design plan and works through that plan to resolve the problems or satisfy his or her question. Students require very little (if any) direct instruction in this modules. ★

Module Learner Expectations

The student will:

- define, develop, engage in and complete independent studies in a design or drafting area of his or her choice.

Specific Learner Expectations

Concept	Specific Learner Expectations	Notes
Applied Problem Solving	<p><i>The student will:</i></p> <ul style="list-style-type: none">● identify a problem requiring a designed solution● prepare a supporting design brief and plan● develop one or more design solutions● attend to aesthetics, form and function.	<ul style="list-style-type: none">● These modules are intended for students who have completed the other modules available in an area and want to undertake an extra project(s). They are for independent study and should not be given to students unless they have a demonstrated maturity level that would indicate a good chance for success.● Some teachers may use these modules to provide specially tailored programs for students with special needs.
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none">● actively participate in a final presentation critique	

★ These modules should only be offered to students able to work independently over a sustained period. Teachers could also use these modules to tailor learnings for special needs students.

**MODULES DES107, DES108, DES207, DES208, DES320, DES321: DESIGN DRAFTING
ACTIVITY MODULES (continued)**

Concept	Specific Learner Expectations	Notes
Presentation, Design Journal and Portfolio (continued)	<p><i>The student will:</i></p> <ul style="list-style-type: none"> ● maintain a design journal of preparatory and supplementary sketches and/or ideas supporting project activity ● maintain a portfolio of ongoing design activity. 	

DATE DUE SLIP

[illegible]

University of Alberta Library



0 1620 0035 8539